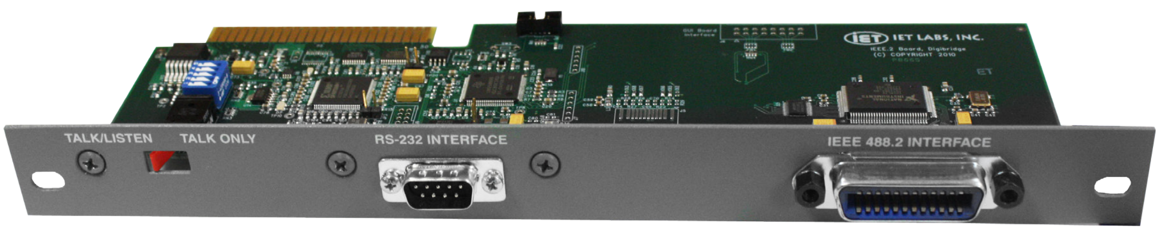
♦ PRECISION INSTRUMENTS FOR TEST AND MEASUREMENT ♦

1689-9640

Digibridge IEEE-488.2 Boards

User and Service Manual



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Digibridge IEEE-488.2 im/March 2011

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Refer servicing to qualified personnel**

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WHEN WORKING WITH HIGH VOLTAGES, POST WARNING SIGNS AND KEEP UNREQUIRED PERSONNEL SAFELY AWAY.

CAUTION

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Overview

The optional Digibridge IEEE-488.2 interface board provides IEEE-488.2 (GPIB) and RS-232 Serial interfaces to the Digibridge 1689/1693 series instruments via 24-pin GPIB and 9-pin male serial connectors. The interface can be used to connect directly to a controller or to a bus comprising of multiple instruments and a controller. All instruments on the IEEE-488.2 bus must meet the IEEE Standard 488.2-1987 (Standard Digital Interface for Programmable Instrumentation).

The IEEE-488 interface board supports the IEEE-488.2 and SCPI interface standard and communication protocol. The physical, electrical, signal and protocol standards of the IEEE-488.1-1987, IEEE-488.2-1987 and SCPI-1999 standards are supported.

The following IEEE-488 functions are implemented:

AH1	Acceptor Handshake (Listener)
SH1	Source Handshake (Talker)
T5	Talker with normal and talk-only modes (for systems without a controller), switch selectable on the rear panel.
L4	Listener.
SR1	Service Request (to request service when measurement is complete and the instrument is not addressed to talk).
RL2	Remote/Local (no local lockout, no return-to-local switch).
PP0	No Parallel Poll.
DC1	Device Clear.
DT1	Device Trigger (to start measurement).
C0	No controller functions.
E2	Electrical Interface.

Configuration

The Digibridge IEEE-488.2 interface board has two switches for setting operating configuration, SW1, the Talk-Listen / Talk-Only toggle switch, and S2, the GPIB Address selection DIP switch.

Talk-Listen / Talk-Only Toggle Switch

The SW1 red toggle switch is used to select between the Talk-Listen and the Talk-Only operating modes. If no controller (or PC) will be used to control the Digibridge via either the IEEE-488 or RS-232 interfaces, then the SW1 toggle switch should be set to Talk-Only. For controlling the Digibridge externally via either interface, the SW1 toggle switch should be set to Talk-Listen.

GPIB Address DIP Switch

The GPIB Address of the Digibridge is set by the SW2 DIP Switch. The numeric value is set by setting the switch on or off for the corresponding bit with the OFF position for binary 1 and ON position for binary 0. Depress the rocker toward the OFF marking for OFF and toward the numeric marking for the corresponding ON position.

SW2 DIP switch setting for selecting Digibridge GPIB address:

GPIB Address	5	4	3	2	1
0	ON	ON	ON	ON	ON
1	ON	ON	ON	ON	OFF
2	ON	ON	ON	OFF	ON
3	**ON**	**ON**	**ON**	**OFF**	**OFF**
4	ON	ON	OFF	ON	ON
5	ON	ON	OFF	ON	OFF
6	ON	ON	OFF	OFF	ON
7	ON	ON	OFF	OFF	OFF
8	ON	OFF	ON	ON	ON
9	ON	OFF	ON	ON	OFF
10	ON	OFF	ON	OFF	ON
11	ON	OFF	ON	OFF	OFF
12	ON	OFF	OFF	ON	ON
13	ON	OFF	OFF	ON	OFF
14	ON	OFF	OFF	OFF	ON
15	ON	OFF	OFF	OFF	OFF
16	OFF	ON	ON	ON	ON
17	OFF	ON	ON	ON	OFF
18	OFF	ON	ON	OFF	ON
19	OFF	ON	ON	OFF	OFF
20	OFF	ON	OFF	ON	ON
21	OFF	ON	OFF	ON	OFF
22	OFF	ON	OFF	OFF	ON
23	OFF	ON	OFF	OFF	OFF
24	OFF	OFF	ON	ON	ON
25	OFF	OFF	ON	ON	OFF
26	OFF	OFF	ON	OFF	ON
27	OFF	OFF	ON	OFF	OFF
28	OFF	OFF	OFF	ON	ON
29	OFF	OFF	OFF	ON	OFF
30	OFF	OFF	OFF	OFF	ON
31	*OFF*	*OFF*	*OFF*	*OFF*	*OFF*

GPIB Address 31 is not a valid GPIB Address and setting the SW2 DIP switch to this setting (all switches in the OFF position) will disable the GPIB interface, with all communication possible only via the RS-232 serial interface.

By convention, GPIB Address 0 is normally used by the controller.

Jumpers

The Digibridge IEEE-488.2 interface board has three jumpers, JP1, JP2, and JP3. For normal operation, all three jumpers should be open (no shorting blocks inserted).

JP1 enables the RS-232 interface driver auto power off.

JP2 forces firmware update mode via RS-232 serial interface. If JP2 is set, the board will be forced to await firmware update and the Digibridge will be held in reset state.

JP3 enables flash write protect. If JP3 is set, certain onboard flash will be prevented from being updated. Since multiple safeguards are in place to prevent unintentional flash overwriting, the use of JP3 is not needed.

All other headers, populated and non-populated, are intended only for manufacturing test or future use. Do insert connectors or shorting blocks into these headers as the board may malfunction or permanent damage may result.

RS-232 Serial Interface

The RS-232 Serial Interface implements a standard 9 wire DTE serial interface requiring the use of a standard 9-pin Female-to-Female Null Modem cable for connection to a PC. In normal use, either the IEEE-488 interface or the RS-232 interface is used. Using both interfaces at the same time is possible, but will degrade overall communication speed and can lead to communication conflicts.

Legacy Digibridge IEEE-488 Commands

The legacy IEEE-488.1 Digibridge commands are supported by the IEEE-488 interface board for compatibility with software and drivers written for the original Digibridge IEEE-488.1 interface boards.

Category	Description	Type	Code
Display	Bin #	2 byte	D0
	Delta %	2 byte	D1
	Value	2 byte	D2
	Delta RLC	2 byte	D3
	Ratio: nominal value / RLC value	2 byte	D4
	Ratio: RLC value / nominal value	2 byte	D5
	Bin on ratio: nominal value / RLC value	2 byte	D6
	Bin on ratio: RLC value / nominal value	2 byte	D7
Measurement Rate	Fast	2 byte	S0
	Medium	2 byte	S1
	Slow	2 byte	S2
Measurement Voltage	Constant, off	2 byte	Y0
	Constant, on	2 byte	Y1
	Value (in volts) = v	Floating point	Vv;
Function	**Measure**	2 byte	P0
	Enter	2 byte	P1
Reset	Turn-On Conditions	2 byte	P2
	Diagnostics	2 byte	P3
Measurement Mode	**Triggered**	2 byte	T0
	Continuous	2 byte	T1
	Triggered median value	2 byte	T2
	Continuous median value	2 byte	T3
Parameter	Inductance (L/Q)	2 byte	M0
	Capacitance (C/D)	2 byte	M1
	Capacitance (C/R)	2 byte	M2
	Resistance (R/Q)	2 byte	M3
	Inductance (L/Q) ppm	2 byte	M4
	Capacitance (C/D) ppm	2 byte	M5
	Capacitance (C/R) ppm	2 byte	M6
	Resistance (R/Q) ppm	2 byte	M7
	Automatic selection of R/Q, C/D, or L/Q	2 byte	M8
	Resistance (R/X)	*2 byte*	*K2*
	Conductance (G/B)	*2 byte*	*K3*
	Impedance (Z/ANG)	*2 byte*	*K4*
	Admittance (Y/ANG)	*2 byte*	*K5*
	Impedance (Z/ANG) ppm	*2 byte*	*K6*
	Admittance (Y/ANG) ppm	*2 byte*	*K7*
Equivalent Circuit	Parallel	2 byte	C0
	Series	2 byte	C1

Range Control	Hold range	2 byte	R0
	Hold range 1	2 byte	R1
	Hold range 2	2 byte	R2
	Hold range 3	2 byte	R3
	Hold range 4	2 byte	R4
	Autorange	2 byte	R5
Frequency	Value (in kHz) = f	Floating point	Ff;
Zero Calibration	**Disable**	2 byte	Z0
	Enable open	2 byte	Z1
	Enable short	2 byte	Z2
Output Format	**Normal** (not compacted)	2 byte	x0 *
	Compacted binary format	2 byte	x1 *
Data Output	**None**	2 byte	X0
	Bin #	2 byte	X1
	QDR	2 byte	X2
	QDR, Bin #	2 byte	X3
	RLC	2 byte	X4
	RLC, Bin #	2 byte	X5
	RLC, QDR	2 byte	X6
	RLC, QDR, Bin #	2 byte	X7
	RLC, QDR, Bin # on FAIL only	2 byte	X8
	Same on FAIL; Bin # on PASS	2 byte	X9
Nominal Value	Value (in ohms, henries, farads) = n	Floating point	Nn;
Limit Entry	Bin #	3 byte	Bbb
	High limit (in %) = h	Floating point	Hh;
	Low limit (in %) = l	Floating point	Ll;
Initiation	Start a measurement (like start switch)	2 byte	G0
Manual Start	**Enable switch**	2 byte	W0
	Disable switch	2 byte	W1
Keyboard Lock	**Unlock**	2 byte	K0
	Lock	2 byte	K1
Average	# of measurements = a	Floating point	Aa;
Internal Bias	**Off**	2 byte	U0
	On	2 byte	U1
Bin Summary	**Disable output**	2 byte	E0
	Enable output	2 byte	E1
	Reset bin summary to 0	2 byte	E2

Measurement Routine	**Normal routine (highest speed)**	2 byte	Q0
	Signal reversal (use for low frequency hum rejection)	2 byte	Q1
	Shorting between measurements (used for reducing transient-recovery time within measuring circuit, when measuring with bias; NOT FOR DISCHARGING THE DUT)	2 byte	Q2
	Signal reversal and shorting between measurements	2 byte	Q3
	Quick-acquisition feature	2 byte	Q4
	Quick-acquisition & shorting	2 byte	Q5
Display Digit Blanking	Eliminate (a) digits from RLC, (b) digits from QDR	3 byte	Oab
Integration-Time Multiplying Factor	Value (i) multiplies MEDIUM and FAST integration times	Floating point	Ii;
Delay	Value (in ms) = j	Floating point	Jj; **
Constant Current	*Value (in mA) = #*	*Floating point*	*i#; ****

Notes: Parameters in **bold** are default power-on or P2 reset settings.
Commands in *italic* are available only on the Digibridge 1693 model.
* Indicates lower-case character.
** Delay command must be entered after frequency command. (Inverting this sequence will cause delay to revert to its default value.)
*** Lower-case i.

IEEE 488.2 / SCPI Digibridge Command Summary

The IEEE-488.2 / SCPI commands are used to communicate with the Digibridge via the IEEE-488 or RS-232 serial interfaces replacing and/or supplementing the legacy commands.

Command	Parameter(s)	Description	Legacy
CONFigure:			
PARameter		Selects the measured parameter	
	LQ	Inductance (L/Q)	M0
	CD	Capacitance (C/D)	M1
	CR	Capacitance (C/R)	M2
	RQ	Resistance (R/Q)	M3
	LQPPm	Inductance (L/Q) ppm	M4
	CDPPm	Capacitance (C/D) ppm	M5
	CRPPm	Capacitance (C/R) ppm	M6
	RQPPm	Resistance (R/Q) ppm	M7
	AUTo	Automatic selection of R/Q, C/D, or L/Q	**M8**
	RX	*Resistance (R/X)*	K2
	GB	*Conductance (G/B)*	K3
	ZANG	*Impedance (Z/ANG)*	K4
	YANG	*Admittance (Y/ANG)*	K5
	ZAPPm	*Impedance (Z/ANG) ppm*	K6
	YAPPm	*Admittance (Y/ANG) ppm*	K7
CIRCuit		Selects the measured equivalent circuit	
	PARallel	Parallel	C0
	SERies	Series	**C1**
APERture		Measure rate	
	FAST	Fast	S0
	MEDium	Medium	S1
	SLOW	Slow	**S2**
MODe		Sets the measure mode	
	TRIGgered	Triggered	**T0**
	CONTinuous	Continuous	T1
	MTRiggered	Triggered median value	T2
	MCONtinuous	Continuous median value	T3
DISPlay		Results to display on the front panel	
	BIN	Bin #	D0
	DELTa	Delta %	D1
	VALue	Value	**D2**
	DRLC	Delta RLC	D3
:RATio			
	NOMValue	Ratio: nominal value / RLC value	D4
	VALNominal	Ratio: RLC value / nominal value	D5
:BINRatio			
	NOMValue	Bin on ratio: nominal value / RLC value	D6
	VALNominal	Bin on ratio: RLC value / nominal value	D7
FUNCtion		Sets function mode to measure or entry setting	
	MEASure	Measure	**P0**
	ENTer	Enter mode for setting configuration	P1

RANGe	HOLD 1 2 3 4 **AUTo**	Sets the measurement range Hold range Hold range 1 Hold range 2 Hold range 3 Hold range 4 Autorange	R0 R1 R2 R3 R4 **R5**
DELay	<numeric>	Sets the trigger delay time Real value in ms	J<numeric>;
ITFactor	<numeric>	Sets the integration-time multiplying factor Real value multiplies Medium and Fast integration times	I<numeric>;
AVERage	<numeric>	Sets the number of measurements to average # of measurements	A<numeric>;
FREQuency	<numeric>	Sets the frequency used for measurement Real value in kHz	F<numeric>;
VOLTage:		Sets the measurement signal voltage	
CONStant	**OFF** ON	Constant voltage off Constant voltage on	**Y0** Y1
LEVel	<numeric>	Real value in volts	V<numeric>;
CURRent	*<numeric>*	*Sets constant current* *Real value in mA*	*i<numeric>;*
BIAS	**OFF** ON	Enables or disables DC bias Off On	**U0** U1
ROUTine	**NORMal** REVersal SHORting REVShorting QUICk QSHorting	Sets the measurement routine Normal routine (highest speed) Signal reversal (for low freq hum rejection) Shorting between measurements Signal reversal and shorting Quick-acquisition feature Quick-acquisition & shorting	**Q0** Q1 Q2 Q3 Q4 Q5
NOMinal	<numeric>	Sets the nominal value Real value in ohms, henries, farads	N<numeric>;
BLANking	<a> <b>	Front panel display digit blanking Eliminate <a> digits from RLC and <b> digits From QDR	O<a><b>

BIN:		Sets the limit entries for binning	
NUM	<numeric>	Bin #	B<numeric>
HIGH	<numeric>	Real value high limit in %	H<numeric>;
LOW	<numeric>	Real value low limit in %	L<numeric>;
BINSummary	 **DISable** ENABle RESet	Enables or disables bin summary output Disable output Enable output Reset bin summary to 0	 **E0** E1 E2
OUTPut	 **NONe** BIN QDR QBIN RLC RBIN RQDR RQBin RQBFail RQBPass	Sets the data to output via GPIB / RS-232 None Bin # QDR QDR, Bin # RLC RLC, Bin # RLC, QDR RLC, QDR, Bin # RLC, QDR, Bin # on FAIL only Same on FAIL, Bin # on PASS	 **X0** X1 X2 X3 X4 X5 X6 X7 X8 X9
DATaformat	 **ASCii** BINary	Selects GPIB / RS-232 output data format Normal ASCII (not compacted) Compacted binary format	 **x0** x1
SYSTem:			
SWITch	 **ENABle** DISable	Enables or disables the manual start switch Enable switch Disable switch	 **W0** W1
KEYPad	 **ENABle** DISable	Enables or disables the front panel keypad Unlock (enable keypad) Lock (disable keypad)	 **K0** K1
RESet		Resets settings to turn-on conditions	P2
RESTart		Restarts and reruns power-on diagnostics	P3
CALibration	 **DISable** OPEN SHORt	Zero calibration Disable Perform open circuit calibration Perform short circuit calibration	 **Z0** Z1 Z2

COMMunicate:			
GPIB:			
ADDRess?		Reads the instrument GPIB address	
CONFigure	**ENABle** DISable	Enables or disables the GPIB interface Enable GPIB interface Disable GPIB interface (if using RS-232)	
SERial:			
CONFigure	**ENABle** DISable	Enables or disables the RS-232 serial interface Enable RS-232 interface Disable RS-232 interface (if using GPIB)	
BAUDrate	9600 **19200** 38400 57600 115200	Sets the RS-232 interface baud rate	
PARity	**NONe** EVEN ODD	Sets the RS-232 interface parity No parity Even parity Odd parity	
STOPbits	**1** 2	Sets the RS-232 interface stop bits One stop bit Two stop bits	
HANDshake	**NONe** XON HARDware MODem	Sets the RS-232 interface handshake No handshake XOn/XOff software handshake Hardware handshake Modem handshake	
ERRor?		Reads the error message from error queue	
[:NEXT?]		Reads the error message from error queue	
VERSion?		Reads the interface version	
STATus:			
OPERation?		Reads the Event Register	

OPERation:			
[EVENt]?		Reads the Event Register	
CONDition?		Reads the Condition Register	
ENABle	<numeric>	Sets the Enable Mask Register	
ENABle?		Reads the Enable Mask Register	
QUEStionable?		Reads the Event Register	
QUEStionable:			
[EVENt]?		Reads the Event Register	
CONDition?		Reads the Condition Register	
ENABle	<numeric>	Sets the Enable Mask Register	
ENABle?		Reads the Enable Mask Register	
PRESet		Enables all required event reporting	
MEASure		Initiates a measurement (like start switch)	G0
*CLS		Clear Status Register	
*ESE	<numeric>	Sets Standard Event Status Enable	
*ESE?		Reads Standard Event Status Enable	
ESR?		Reads the Standard Event Status Register	
*IDN?		Reads the instrument identification information	
*OPC		Sets the OPC bit in the Standard Event Status	
*OPC?		Reads the OPC bit	
*RST		Resets buffers	
*SRE	<numeric>	Sets the Service Request Enable Register	
*SRE?		Reads the Service Request Enable Register	
*STB?		Reads the Status Byte Register	
*TST?		Self-test query	
*WAI		Waits until all commands have completed	

Notes: Parameters in **bold** are default power-on or SYSTem:RESet (P2) settings.
Commands in *italic* are available only on the Digibridge 1693 model.

:CONFigure:PARameter

Syntax: :CONFigure:PARameter {LQ|CD|CR|RQ|LQPPm|CDPPm|CRPPm|RQPPm|**AUTo**|RX|GB|ZANG|YANG|ZAPPm|YAPPm}

Description: Sets the measured parameter.

Parameter:

Value	Description
LQ	Inductance (L/Q)
CD	Capacitance (C/D)
CR	Capacitance (C/R)
RQ	Resistance (R/Q)
LQPPm	Inductance (L/Q) ppm
CDPPm	Capacitance (C/D) ppm
CRPPm	Capacitance (C/R) ppm
RQPPm	Resistance (R/Q) ppm
AUTo (default)	Automatic selection of R/Q, C/D, or L/Q
RX	*Resistance (R/X)*
GB	*Conductance (G/B)*
ZANG	*Impedance (Z/ANG)*
YANG	*Admittance (Y/ANG)*
ZAPPm	*Impedance (Z/ANG) ppm*
YAPPm	*Admittance (Y/ANG) ppm*

Equivalent legacy command: M0, M1, M2, M3, M4, M5, M6, M7, **M8**, *K2, K3, K4, K5, K6, K7*

Equivalent key:

Note: Parameters in italic are available only on the Digibridge 1693M model.

:CONFigure:CIRCuit

Syntax: :CONFigure:CIRCuit {PARallel|**SERies**}

Description: Sets the measurement equivalent circuit.

Parameter:

Value	Description
PARallel	Parallel equivalent circuit
SERies	Series equivalent circuit

Equivalent legacy command: C0, **C1**

Equivalent key:

:CONFigure:APERture

Syntax: :CONFigure:APERture {FAST|MEDium|**SLOW** }

Description: Sets the measure rate.

Parameter:

Value	Description
FAST	Sets measurement rate to fast
MEDium	Sets measurement rate to medium
SLOW	Sets measurement rate to slow

Equivalent legacy commands: S0, S1, **S2**

Equivalent key:

:CONFigure:MODe

Syntax: :CONFigure:MODe {**TRIGgered**|CONTinuous|MTRiggered|MCONtinuaous}

Description: Set the measure mode.

Parameter:

Value	Description
TRIGgered	Set measurement mode to triggered
Continuous	Set measurement mode to continuous
MTRiggered	Set measurement mode to triggered median value
MCONtinuous	Set measurement mode to continuous median value

Equivalent legacy command: **T0**, T1, T2, T3

Equivalent key: none

:CONFigure:DISPlay

Syntax: :CONFigure:DISPlay {BIN|DELTa|**VALue**|RLC}

Description: Set measurement displayed on Digibridge front panel.

Parameter:

Value	Description
BIN	Display Bin #
DELTa	Display Delta %
VALue	Display Value
DRLC	Display Delta RLC

Equivalent legacy command: D0, D1, **D2**, D3

Equivalent key: none

:CONFigure:DISPlay:RATio

Syntax: :CONFigure:DISPlay:RATio {NOMValue|VALNominal}

Description: Set Digibridge front panel to display measurement ratio.

Parameter:

Value	Description
NOMValue	Display Ratio: nominal value / RLC value
VALNominal	Display Ratio: RLC value / nominal value

Equivalent legacy command: D4, D5

Equivalent key: none

:CONFigure:DISPLay:BINRatio

Syntax: :CONFigure:DISPLay:BINRatio {NOMValue|VALNominal}

Description: Set Digibridge front panel to display measurement bin on ratio.

Parameter:

Value	Description
NOMValue	Display Bin on ratio: nominal value / RLC value
VALNominal	Display Bin on ratio: RLC value / nominal value

Equivalent legacy command: D6, D7

Equivalent key: none

:CONFigure:FUNCtion

Syntax: :CONFigure:FUNCtion {**MEASure**|ENTer}

Description: Set function mode to measurement or setting entry. This command affects user keyboard entry.

Parameter:

Value	Description
MEASure	Set function to Measure
ENTer	Set function to Enter (enable setting configuration)

Equivalent legacy command: **P0**, P1

Equivalent key: **MEASURE** key, current state indicated by **MEASURE** and **ENTER** LEDs.

:CONFigure:RANGe

Syntax: :CONFigure:RANGe {HOLD|1|2|3|4|**AUTo**}

Description: Set the measurement range.

Parameter:

Value	Description
HOLD	Hold range
1	Hold range 1
2	Hold range 2
3	Hold range 3
4	Hold range 4
AUTo	Autorange

Equivalent legacy command: R0, R1, R2, R3, R4, **R5**

Equivalent key:

:CONFigure:DELay

Syntax: :CONFigure:DELay <numeric>

Description: Sets the trigger delay time.

Parameter:

Value	Description
<numeric>	Delay time real value in ms

Equivalent legacy command: J<numeric>;

Equivalent key:

:CONFigure:ITFactor

Syntax: :CONFigure:ITFactor <numeric>

Description: Set the integration-time multiplying factor. Value <numeric> multiplies MEDIUM and FAST integration times.

Parameter:

Value	Description
<numeric>	Integration-Time Multiplying Factor real value

Equivalent legacy command: I<numeric>;

Equivalent key:

:CONFigure:AVERage

Syntax: :CONFigure:AVERage <numeric>

Description: Set the number of measurements to average.

Parameter:

Value	Description
<numeric>	# of measurements

Equivalent legacy command: A<numeric>;

Equivalent key:

:CONFigure:FREQuency

Syntax: :CONFigure:FREQuency <numeric>

Description: Sets the frequency used for measurement signal.

Parameter:

Value	Description
<numeric>	Frequency real value in kHz

Equivalent legacy command: F<numeric>;

Equivalent key: none

:CONFigure:VOLTage:CONStant

Syntax: :CONFigure:VOLTage:CONStant {**OFF**|ON}

Description: Set the measurement signal voltage.

Parameter:

Value	Description
OFF	Set constant voltage off
ON	Set constant voltage on

Equivalent legacy command: Y0, Y1

Equivalent key:

:CONFigure:VOLTage:LEVel

Syntax: :CONFigure:VOLTage:LEVel <numeric>

Description: Set the measurement signal voltage level.

Parameter:

Value	Description
<numeric>	Set measurement voltage level to real value (in volts)

Equivalent legacy command: V<numeric>;

Equivalent key:

:CONFigure:CURRent

Syntax: :CONFigure:CURRent <numeric>

Description: Set the measurement constant current level.

Parameter:

Value	Description
<numeric>	Set measurement current to real value (in mA)

Equivalent legacy command: i<numeric>;

Equivalent key:

Note: The :CONFigure:CURRent command is available only on the Digibridge 1693M model.

:CONFigure:BIAS

Syntax: :CONFigure:BIAS {**OFF**|ON|0|1}

Description: Enables or disables DC bias.

Parameter:

Value	Description
OFF or 0	Disables the DC bias
On or 1	Enables the DC bias

Equivalent legacy command: **U0**, U1

Equivalent key:

:CONFigure:ROUTine

Syntax: :CONFigure:ROUTine {**NORMal**|REVersal|SHORting|REVShortint|QUICk|QSHorting}

Description: Set the measurement routine.

Parameter:

Value	Description
NORMal	Normal routine (highest speed)
REVersal	Signal reversal (use for low frequency hum rejection)
SHORting	Shorting between measurements (used for reducing transient-recovery time within measuring circuit, when measuring with bias; NOT FOR DISCHARGING THE DUT)
REVShorting	Signal reversal and shorting between measurements
QUICk	Quick-acquisition feature
QSHorting	Quick-acquisition & shorting

Equivalent legacy command: **Q0**, Q1, Q2, Q3, Q4, Q5

Equivalent key: none

:CONFigure:NOMinal

Syntax: :CONFigure:NOMinal <numeric>

Description: Set the nominal real value <numeric> in ohms, henries, or farads.

Parameter:

Value	Description
<numeric>	Nominal real value

Equivalent legacy command: N<numeric>;

Equivalent key:

:CONFigure:BLANking

Syntax: :CONFigure:BLANKing <a numeric> <b numeric>

Description: Set display digit blanking. Eliminate <a numeric> digits from RLC and <b numeric> digits from QDR displays on Digibridge front panel.

Parameter: <a numeric>

Value	Description
0 to 5	Number of digits to eliminate from RLC display

<b numeric>

Value	Description
0 to 4	Number of digits to eliminate from QDR display

Equivalent legacy command: O<a numeric><b numeric>

Equivalent key:

:CONFigure:BIN:NUM

Syntax: :CONFigure:BIN:NUM <numeric>

Description: Set the limit entry bin number.

Parameter:

Value	Description
<numeric>	Bin #, range 0 to 15

Equivalent legacy command: B<numeric>

Equivalent key:

:CONFigure:BIN:HIGH

Syntax: :CONFigure:BIN:HIGH <numeric>

Description: Set the limit entry bin high limit (in %).

Parameter:

Value	Description
<numeric>	Real value high limit in %

Equivalent legacy command: Hh;

Equivalent key:

:CONFigure:BIN:LOW

Syntax: :CONFigure:BIN:LOW <numeric>

Description: Set the limit entry bin low limit (in %).

Parameter:

Value	Description
<numeric>	Real value low limit in %

Equivalent legacy command: L<numeric>;

Equivalent key:

:CONFigure:BINSummary

Syntax: :CONFigure:BINSummary {**DISable**|ENABle|RESet}

Description: Enables or disables bin summary output.

Parameter:

Value	Description
DISable	Disable output
ENABle	Enable output
RESet	Reset bin summary to 0

Equivalent legacy command: **E0**, E1, E2

Equivalent key:

:CONFigure:OUTPut

Syntax: :CONFigure:OUTPut
{**NONe**|BIN|QDR|QBIN|RLC|RBIN|RQDR|RQBin|RQBFail|RQBPass}

Description: Selects the data that is output.

Parameter:

Value	Description
NONe	No data output
BIN	Bin #
QDR	QDR
QBIN	QDR, Bin #
RLC	RLC
RBIN	RLC, Bin #
RQDR	RLC, QDR
RQBin	RLC, QDR, Bin #
RQBFail	RLC, QDR, Bin # on FAIL only
RQBPass	Same on FAIL; Bin # on PASS

Equivalent legacy command: **X0**, X1, X2, X3, X4, X5, X6, X7, X8, X9

Equivalent key:

:CONFigure:DATaformat

Syntax: :CONFigure:DATaformat {ASCii|BINary}

Description: Selects the GPIB / RS-232 output data transfer format.

Parameter:

Value	Description
ASCii	Set output format to normal ASCII text
BINary	Set output format to compacted binary

Equivalent legacy command: **x0**, x1

Equivalent key:

:SYSTem:SWITch

Syntax: :SYSTem:SWITch {**ENABle**|DISable}

Description: Enables or disables manual start switch.

Parameter:

Value	Description
ENABle	Enable manual start switch
DISable	Disable manual start switch

Equivalent legacy command: **W0**, W1

Equivalent key: none

:SYSTem:KEYPad

Syntax: :SYSTem:KEYPad {**ENABle**|DISable}

Description: Enables or disables the front panel keypad.

Parameter:

Value	Description
ENABle	Unlock (enable) keypad
DISable	Lock (disable keypad

Equivalent legacy command: **K0**, K1

Equivalent key: none

:SYSTem:RESet

Syntax: :SYSTem:RESet

Description: Resets the Digibridge configuration to turn-on conditions.

Equivalent legacy command: P2

Equivalent key:

:SYSTem:RESTart

Syntax: :SYSTem:RESTart

Description: Resets the Digibridge and re-runs power-on diagnostics.

Equivalent legacy command: P3

Equivalent key:

:SYSTem:CALibration

Syntax: :SYSTem:CALibration {**DISable**|OPEN|SHORt}

Description: Enables open or short zero calibration. The :SYSTem:CALibration? query reads current status.

Parameter:

Value	Description
DISable	Disable
OPEN	Enable open circuit calibration
SHORt	Enable short circuit calibration

Equivalent legacy command: **Z0**, Z1, Z2

Equivalent key:

:SYSTem:COMMunicate:GPIB:ADDRess?

Syntax: :SYSTem:COMMunicate:GPIB:ADDRess?

Description: Reads the GPIB address of the Digibridge. (Query Only) The GPIB address can only be changed by changing the SW2 DIP switch setting on the Digibridge IEEE.2 Communication board.

Parameter:

Value	Description
1 to 30	Numeric value range
3 (default)	Default GPIB address

Equivalent legacy command: none

Equivalent key:

:SYSTem:COMMunicate:GPIB:CONFigure

Syntax: :SYSTem:COMMunicate:GPIB:CONFigure {**ENABle**|DISable}

Description: Enable or disable the GPIB interface. The GPIB interface can be disabled to prevent interference with or slowing down of measurements if using another interface, such as the RS-232 serial interface, for communicating with the Digibridge instrument.

Parameter:

Value	Description
ENABle	Enable GPIB interface.
DISable	Disable GPIB interface (if using RS-232).

Equivalent legacy command: none

Equivalent key:

:SYSTem:COMMunicate:SERial:CONFigure

Syntax: :SYSTem:COMMunicate:SERial:CONFigure {**ENABle**|DISable}

Description: Enable or disable the RS-232 serial interface. The RS-232 serial interface can be disabled to prevent interference with or slowing down of measurements if using another interface for communicating with the Digibridge instrument.

Parameter:

Value	Description
ENABle	Enable RS-232 serial interface.
DISable	Disable RS-232 serial interface.

Equivalent legacy command: none

Equivalent key: none

:SYSTem:COMMunicate:SERial:BAUDrate

Syntax: :SYSTem:COMMunicate:SERial:BAUDrate {9600|**19200**|38400|57600|115200}

Description: Set the RS-232 serial interface baud rate.

Parameter:

Value	Description
9600	9600 BAUD
19200	19200 BAUD
38400	38400 BAUD
57600	57600 BAUD
115200	115200 BAUD

Equivalent legacy command: none

Equivalent key: none

:SYSTem:COMMunicate:SERial:PARity

Syntax: :SYSTem:COMMunicate:SERial:PARity {**NONe**|EVEN|ODD}

Description: Set the RS-232 serial interface parity.

Parameter:

Value	Description
NONe	No parity
EVEN	Even parity
ODD	Odd parity

Equivalent legacy command: none

Equivalent key: none

:SYSTem:COMMunicate:SERial:STOPbits

Syntax: :SYSTem:COMMunicate:SERial:STOPbits {**1**|2}

Description: Set the number of RS-232 serial interface stop bits.

Parameter:

Value	Description
1	1 stop bit
2	2 stop bits

Equivalent legacy command: none

Equivalent key: none

:SYSTem:COMMunicate:SERial:HANDshake

Syntax: :SYSTem:COMMunicate:SERial:HANDshake {**NONe**|XON|HARDware|MODem}

Description: Set the RS-232 serial interface handshake.

Parameter:

Value	Description
NONe	No handshake
XON	XOn/XOff software handshake
HARDware	Hardware handshake
MODem	Modem handshake

Equivalent legacy command: none

Equivalent key: none

:SYSTem:ERRor[:NEXT]?

Syntax: :SYSTem:ERRor[:NEXT]?

Description: Reads the error message. (Query only)

Equivalent legacy command: none

Equivalent key: none

:SYSTem:VERSion?

Syntax: :SYSTem:VERSion?

Description: Reads the instrument version. (Query only)

Equivalent legacy command: none

Equivalent key: none

:STATus:OPERation[:EVENt]?

Syntax: :STATus:OPERation[:EVENt]?

Description: Reads the value of the Operation Status Event Register. (Query Only)

Equivalent legacy command: none

Equivalent key: none

:STATus:OPERation:CONDition?

Syntax: :STATus:OPERation:CONDition?

Description: Reads the value of the Operation Status Condition Register. (Query Only)

Equivalent legacy command: none

Equivalent key: none

:STATus:OPERation:ENABle

Syntax: :STATus:OPERation:ENABle <numeric>
:STATus:OPERation:ENABle?

Description: Sets the Operation Enable Mask Register to specified numeric value. :STATus:OPERation:ENABle? reads the current value of the Operation Enable Mask Register without clearing the register value.

Parameter:

Value	Description
0 to 255	Numeric value range

Equivalent legacy command: none

Equivalent key: none

:STATus:QUEStionable[:EVENt]?

Syntax: :STATus:QUEStionable[:EVENt]?

Description: Reads the value of the Questionable Status Event Register. (Query Only)

Equivalent legacy command: none

Equivalent key: none

:STATus:QUEStionable:CONDition?

Syntax: :STATus:QUEStionable:CONDition?

Description: Reads the value of the Questionable Status Condition Register. (Query Only)

Equivalent legacy command: none

Equivalent key: none

:STATus:QUEStionable:ENABle

Syntax: :STATus:QUEStionable:ENABle <numeric>
:STATus:QUEStionable:ENABle?

Description: Sets the Questionable Enable Mask Register to specified numeric value. :STATus:QUEStionable:ENABle? reads the current value of the Questionable Enable Mask Register without clearing the register value.

Parameter:

Value	Description
0 to 255	Numeric value range

Equivalent legacy command: none

Equivalent key: none

:STATus:PRESet

Syntax: :STATus:PRESet

Description: Enables all required event reporting.

Equivalent legacy command: none

Equivalent key: none

:MEASure

Syntax: :MEASure

Description: Start a measurement upon read (like pressing the start switch).

Equivalent legacy command: G0

Equivalent key: **START** key

*CLS

Syntax: *CLS

Description: Clears the following:

- Error Queue
- Status Byte Register
- Standard Event Status Register
- Operation Status Event Register
- Questionable Status Event Register (No Query)
- Resets to Turn-On Conditions (legacy P2 command)

Equivalent legacy command: P2

Equivalent key:

*ESE

Syntax: *ESE <numeric>
*ESE?

Description: Sets the value of the Standard Event Status Enable Register to specified numeric value. *ESE? reads the current value of the Standard Event Status Enable Register without clearing the register value.

Parameter:

Value	Description
0 to 255	Numeric value range

Equivalent legacy command: none

Equivalent key: none

*ESR?

Syntax: *ESR?

Description: Reads out the value of the Standard Event Status Register. Executing this command clears the Standard Event Status Register value.

Equivalent legacy command: none

Equivalent key: none

*IDN?

Syntax: *IDN?

Description: Reads out the Digibridge instrument information (manufacturer, model number, serial number, FPGA version number, firmware version number) of the Digibridge.

Example: “IET Labs, 1693M, 20110228, 1.0, 1.0”

Equivalent legacy command: none

Equivalent key: none

*OPC

Syntax: *OPC

Description: Sets the OPC bit (bit 0) of the Standard Event Status Register when all pending operations have completed or ended.

Equivalent legacy command: none

Equivalent key: none

*OPC?

Syntax: *OPC?

Description: Reads 1 if all pending operations have completed or ended.

Equivalent legacy command: none

Equivalent key: none

*RST

Syntax: *RST

Description: Resets Digibridge settings to Turn-On Conditions.

Equivalent legacy command: P2

Equivalent key:

*SRE

Syntax: *SRE <numeric>
*SRE?

Description: Sets the value of the Service Request Enable Register. *SRE? reads the current value of the Service Request Enable Register.

Parameter:

Value	Description
0 to 255	Numeric value range

Equivalent legacy command: none

Equivalent key: none

*STB?

Syntax: *STB?

Description: Reads the value of the Status Byte register.

Equivalent legacy command: none

Equivalent key: none

*TST?

Syntax: *TST?

Description: Initiates self-test and returns 0 if all tests passed or error code if any test failed.

Equivalent legacy command: none

Equivalent key: none

*WAI

Syntax: *WAI

Description: Waits until all commands previously sent have completed.

Equivalent legacy command: none

Equivalent key: none